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10/507,316	09/10/2004	Akira Tsuboyama	03500.017248	4017

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EXAMINER

YAMNITZKY, MARIE ROSE

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1794

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/507,316	Applicant(s) TSUBOYAMA ET AL.	
	Examiner Marie R. Yamnitzky	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1. This Office action is in response to applicant's amendment filed August 31, 2007, which cancels claims 1-9 and adds claims 10-15.

Claims 10-15 are pending.

2. The rejections set forth in the Office action mailed May 04, 2007 are rendered moot by claim cancellation. The previous grounds of rejection under 35 U.S.C. 112, 2nd paragraph, 35 U.S.C. 102(b) and 35 U.S.C. 102(e) are not applicable to present claims 10-15.

3. Claims 14 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 14 and 15 are said to be supported by Figs. 12 and 13, respectively. However, there are discrepancies between the formulae as shown in claims 14 and 15 versus those shown in Figs. 12 and 13. The formula for Compound Example 3 as shown in claim 14 lacks three methyl groups compared to the Compound Example 3 formula as shown in Fig. 12. The formula in claim 15 lacks one methyl group compared to the formula shown in Fig. 13. Support for the Compound Example 3 formula of present claim 14 and the formula in present claim 15 is not provided by the figures, or by the original disclosure as a whole.

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4. Claims 14 and 15 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Compound Example 5 of the formula set forth in claim 14 is not within the scope of a compound having a partial structure represented by the general formula set forth in claim 10, from which claim 14 depends. Compound Example 5 does not meet the definition of R as set forth in claim 10.

The partial structure of the formula set forth in claim 15 does not meet the definition of R as set forth in claim 10. (The examiner notes that this issue will be moot with respect to claim 15 if the claim 15 formula is amended to correspond to the formula in Fig. 13.)

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brunner et al. (US 2002/0079830 A1).

See the whole publication. In particular, see paragraphs [0001]-[0002], [0004]-[0011] and [0019]-[0020] and claims 1-5, 9 and 10.

Brunner et al. suggest a metal coordination compound having a partial structure represented by the general formula defined in present claim 10, with claims 11-13 dependent therefrom, in teaching electroluminescent materials having at least two metal chelates, in which one or more of the metals may be Cu, and in which a chelating moiety may be phenanthroline (the second formula in paragraph [0006]) which may be substituted (e.g. as taught in paragraph [0011]).

The general formulae for the chelating moieties as shown in paragraphs [0006]-[0007] are unsubstituted, but Brunner et al. teach that the chelating moieties can be substituted or unsubstituted. For example, see paragraphs [0006], [0008] and [0011]. Substituents taught in paragraph [0011] include substituents within the scope of substituents specified in the present claims. It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to make and use substituted derivatives of the chelating moieties of the general formulae set forth in paragraphs [0006]-[0007]. Compounds having a partial structure represented by the general formula defined in present claim 10 are encompassed by the prior art wherein the chelating moiety of the second general formula in paragraph [0006] may be substituted by substituents disclosed in paragraph [0011]. Absent a showing of superior/unexpected results commensurate in scope with the claimed subject matter, it is the examiner's position that it would have been within the level of ordinary skill of a worker in the art at the time of the invention to determine suitable and optimum substituents and patterns of substitution for the prior art chelating moieties.

With respect to the light emission lifetime limitation of present claims 11 and 12, it is the examiner's position that it is reasonable to expect that copper complexes of the prior art formulae inherently meet the limitation given the similarity between the prior art complexes and the copper complexes exemplified in the present disclosure.

7. Applicant's arguments filed August 31, 2007 have been fully considered but they are not persuasive with respect to the patentability of claims 10-13 over Brunner et al.

Referencing portions of the specification, applicant argues that the 2,9-substituted phenanthroline structure required by the present claims provides unexpectedly superior results.

Applicant argues that Brunner et al. do not teach or suggest a 2,9-substituted phenanthroline structure, and do not teach the importance of employing 2,9-substituted phenanthrolines. Applicant further argues that while copper is described as a possible alternative, it is not preferred or exemplified. Applicant argues that ruthenium and zinc are preferred in the prior art.

While Brunner et al. do not provide a specific example of a complex comprising at least one copper chelate, the examiner respectfully disagrees with applicant's argument that copper is not preferred. Paragraph [0006] teaches copper (Cu) as a suitable metal for a preferred embodiment, and paragraph [0010] includes Cu(I) in a list from which the metals are preferably selected. Claims 2 and 4 of the prior art also list copper for the metal.

While Brunner et al. do not explicitly teach 2,9-substitution of the phenanthroline structure, Brunner's teachings explicitly provide for substituted phenanthrolines as chelating

moieties. The examiner has considered the present disclosure and is of the position that the data of record do not demonstrate superior/unexpected results commensurate in scope with the claims.

The full paragraph on page 20 of the specification teaches that, with respect to Compound Example 1, substitution at positions 2 and 9 with bulky isobutyl groups results in the pseudo-tetrahedral structure being maintained in the excited state as well as the ground state to provide high light-emission luminance. This paragraph further states that Compound Examples 3-8 are believed to “exhibit high-luminance light emission characteristics on the basis of the same theory.” Presuming, for the sake of argument, that the theory is that bulky groups at positions 2 and 9 of the phenanthroline ligand result in the pseudo-tetrahedral structure being maintained in the excited state as well as the ground state to provide high light-emission luminance, the examiner notes that Compound Example 5 is unsubstituted at positions 2 and 9 of the phenanthroline ligand, and Compound Examples 4, 6 and 7 are substituted at positions 2 and 9 with a methyl group. It is not clear how the “theory” can be applicable to Compound Example 5, which has an unsubstituted phenanthroline ligand. Further, whether one of ordinary skill in the art would consider a methyl group as in Compounds Examples 4, 6 and 7 to be a bulky group is questionable.

Even if the theory is that substitution, in general, at positions 2 and 9 of the phenanthroline ligand provides superior properties, the examiner notes that the data of record do not demonstrate superior/unexpected results commensurate in scope with the claims, which cover numerous compounds in addition to the few compounds tested in the examples. Further,

the data of record show that a compound having an unsubstituted phenanthroline ligand can provide similar properties to compounds having a 2,9-substituted phenanthroline ligand. For example, compare the data for Compound Examples 4, 5 and 8 in Table 6, and see the sentence following Table 6 on page 25. Compound Examples 4, 5 and 8 are similar in structure, differing only at positions 2 and 9, with Compound Example 4 having methyl groups at these positions, Compound Example 5 having no substituent at these positions, and Compound Example 8 having t-butyl groups at these positions.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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9. Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 7:00 a.m. to 3:30 p.m. Monday-Friday.

The current fax number for all official faxes is (571) 273-8300. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

MRY
October 10, 2007

Marie R. Yamnitzky

**MARIE YAMNITZKY
PRIMARY EXAMINER**

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